

ADDITIONS AND CORRECTIONS TO THE FLORA
OF BODEGA HEAD, CALIFORNIA

M. G. BARBOUR

Department of Botany, University of California, Davis 95616

The vascular plants and major plant communities of Bodega Head on the California coast ($38^{\circ}20'N$, $123^{\circ}4'W$) have recently been described (Barbour, 1970). Subsequently, 28 additional species have been noted. This paper lists those additions as well as some corrections to the first report. Voucher collections have been deposited at DAV.

At present the Bodega Head area is known to support 60 families of vascular plants, 172 genera, and 243 species. About two thirds of the species are native. Additional species are to be expected in the near future on the Head, for it appears that the grassland community is undergoing succession to northern coastal scrub. Comparison of aerial photographs taken in 1954 and 1970 demonstrates a three-fold increase in the grassland area dominated by lupine shrubs (*Lupinus arboreus*). Grazing and heavy human use of the grassland have been stopped since 1962; possibly, then, shrub invasion had been held back by disturbance of various sorts. *Lupinus variicolor*, *Delphinium coccineum*, *Poa unilateralis*, and *Bromus carinatus*, all native perennials, have also dramatically increased in the past 2—3 years. Annuals, however, and many of them introduced, still dominate the grassland.

In compiling this addendum, many graduate and extension course students, too many to name individually here, have been of great help. I would also like to acknowledge the help of June McCaskill and Beacher Crampton. Additional information on species distribution, history of the area, and microenvironmental gradients in soil and air will soon appear in book length form (Barbour, et al., in press). Travel expenses were paid by National Science Foundation grant GB-14381.

CHECK LIST

Calamophyta

Equisetaceae

Equisetum hyemale L. var. *robustum* A. A. Eat. Giant scouring rush. Perennial, native. Occasional on shaded, wet banks.

Pterophyta

Salviniaceae

Azolla filiculoides Lam. Water fern. Native, Occasional in still water in the fresh water marsh. Only vegetative plants seen.

Anthophyta—DICOTYLEDONEAE

Caryophyllaceae

Cerastium arvense L. Mouse-ear chickweed. Perennial, native. Rare in the grassland and in drier areas of the fresh water marsh. May–June.

Sagina crassicaulis Wats. Pearlwort. Perennial, native. Rare in the dunes. April–May.

Compositae

Gnaphalium luteo-album L. Cudweed. Perennial, introduced. Rare in seasonally wet depressions. November.

Malacothrix californica DC. Annual, native. Rare in dunes. April–May.

Senecio vulgaris L. Common groundsel. Annual, introduced. Rare to occasional in dunes. April–May.

Geraniaceae

Geranium dissectum L. Annual, introduced. Occasional in grassland. April–May.

Labiatae

Marrubium vulgare L. Horehound. Perennial, introduced. Rare along roads. November.

Monardella villosa Benth. var. *franciscana* (Elmer) Jeps. Coyote mint. Perennial, native. Occasional on grassland hilltops. July.

Leguminosae

Lupinus chamissonis Esch. Lupine. Perennial, native. Localized (less than 50 shrubs) on established dune ridge tops, not intermixed with *L. arboreus*. April–May.

L. densiflorus Benth. var. *palustris* (Kell.) C. P. Sm. Lupine. Annual, native. Rare to occasional on roadcuts. June.

L. variicolor Steud. Lupine. Perennial, native. Occasional along roadsides. April–June.

Trifolium gracilentum T.&G. Clover. Annual, native. Occasional in the grassland and in disturbed areas. April–May.

T. macraei H.&A. Clover. Annual, native. Occasional on rocky grassland hilltops. April–May.

Onagraceae

Camissonia strigulosa (Fisch. & Mey.) Raven. Annual, native. Rare to occasional on established dunes. April–May.

Plantaginaceae

Plantago hookeriana F.&M. var. *californica* (Greene) Poe. Annual, native. Occasional in disturbed parts of the grassland. April–May.

Polemoniaceae

Linanthus androsaceus (Benth.) Greene. Annual, native. Rare on established dunes. April–May.

Polygonaceae

Polygonum coccineum Muhl. Perennial, native. Rare in the fresh water marsh. Only vegetative plants seen.

Ranunculaceae

Delphinium decorum F.&M. Perennial, native. Rare on rocky grassland hilltops. April–May.

Rubiaceae

Galium aparine L. Bedstraw. Annual, introduced. Occasional in wet, shaded microhabitats in established dunes, also scattered in drier parts of the fresh water marsh. April–June.

NOTE: *G. asperrimum* voucher is missing, and identification may be in error. This plant has not been found again; rare in grassland.

G. nuttallii Gray. Bedstraw. Perennial, native. Occasional in seasonally wet depressions. October.

Scrophulariaceae

Linaria canadensis (L.) Dum.-Cours. Annual, native. Rare to occasional in established dunes. April.

Orthocarpus pusillus Benth. Annual, native. Occasional in grassland. April.

Umbelliferae

Berula erecta (Huds.) Cov. Perennial, introduced. Common in the wetter parts of the fresh water marsh. Only vegetative plants seen.

Hydrocotyle ranunculoides L. Marsh pennywort. Perennial, native. Abundant in the wettest part of the fresh water marsh. Only vegetative plants seen.

Anthophyta—MONOCOTYLEDONEAE

Cyperaceae

Carex obnupta Bailey. Sedge. Perennial, native. Rare in fresh water marsh. April–June.

Gramineae

Agrostis alba L. Redtop. Perennial, introduced. Occasional, in dense swards, on grassland hilltop. July.

Festuca megalura Nutt. Foxtail fescue. Annual, native. Rare along sandy roadsides. May.

Poa unilateralis Scrib. Perennial, native. Occasional to common in the grassland. May.

Lemnaceae

Lemna valdiviana Phil. Duckweed. Native. Abundant to common in quiet, fresh water. Only vegetative plants seen.

Typhaceae

NOTE: —*Typha angustifolia* misidentified; should be *T. dominicensis* Pers. Rare to occasional.

Zosteraceae

Zostera marina L. Eel grass. Perennial, native. Common in Bodega Harbor; rarely exposed. Only vegetative plants seen.

LITERATURE CITED

- BARBOUR, M. G. 1970. The flora and plant communities of Bodega Head, California. *Madroño* 20:289–313.
- BARBOUR, M. G., R. CRAIG, F. DRYSDALE, and M. GHISELIN, in press. Bodega Head: coastal ecology. Univ. Calif. Press, Berkeley.